FOSS technology in the school environment

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The Free and Open Source Software (FOSS) model provides interesting tools and processes with which women and men can create, exchange, share and exploit software and knowledge efficiently and effectively. FOSS can play an important role as a practical instrument for development as its free and open aspirations make it a natural component of development efforts in the context of the Millennium Development Goals (MDGs).

- Software plays a crucial role in access to information and knowledge;
- Different software models, including proprietary, open-source and free software, have many possibilities to increase competition, access by users, diversity of choice and to enable all users to develop solutions which best meet their requirements;
- The development and use of open, interoperable, non-discriminatory standards for information handling and access are important elements in the development of effective infostructures;
- The community approaches to software development has great potential to contribute to operationalize the concept of Knowledge Societies;
- The Free and Open Source Software (FOSS) model provides interesting tools and processes with which people can create, exchange, share and exploit software and knowledge efficiently and effectively;
- FOSS can play an important role as a practical instrument for development as its free and open aspirations make it a natural component of development efforts in the context of the Millennium Development Goals (MDGs);
- Consistent support plays an important role in the success and sustainability of FOSS solutions;
- All software choices should be based upon the solution's ability to achieve the best overall return on technology investments.

The UN has a range of activities to promote educational reform and sustainable economic development. Education is key to economic development, as a way of enabling people to fulfill their potential and take increasing control over decisions that affect them.

The approach of Education in ICTs is based on three complementary, somewhat overlapping, approaches that connect education policy with economic development:

- Increasing the extent to which new technology is used by students, citizens and the workforce by incorporating technology skills into the school curriculum — **Technology Literacy**
- Increasing the ability of students, citizens, and the workforce to use knowledge to add value to society and the economy by applying it to solve complex, real-world problems — **Knowledge Deepening**
- Increasing the ability of students, citizens, and the workforce to innovate, produce new knowledge, and benefit from this new knowledge — **Knowledge Creation**

- Understanding ICT in Education;
- Curriculum and assessment;
- Pedagogy;
- ICT;
- Organization and administration;
- Teacher professional learning.

Understanding ICT in Education

- Ideally an integrated FOSS Education Solution should be part of the technical roadmap of the government/ministry;

- Example (South African government): “Government is challenged with the imperative of accelerating responses to many needs of its citizens. Universal access to information and communication technology is an important success factor to achieve this and a plan has been drafted to roll out free open source software technology to promote such access.”

- Example (Indian Ministry of Education): The government of India encourages the use of open source products in their school education system…. “The syllabus/ curriculum should emphasize principles and not products”..

Curriculum and assessment

- 2012 Paris OER Declaration recalls existing Declarations and Guidelines on Open Educational Resources such as the 2007 Cape Town Open Education Declaration, the 2009 Dakar Declaration on Open Educational Resources and the 2011 Commonwealth of Learning and UNESCO Guidelines on Open Educational Resources in Higher Education;

- Promote the understanding and use of open licensing frameworks;

- Foster strategic alliances for OER;

- Encourage the open licensing of educational materials produced with public funds.

Pedagogy

- Use software based on information and performance need;

- Study and adapt the software so that it fits more closely to a school's own particular needs.

ICT

- FOSS can reduce licensing costs for schools;

- Flexible Open source products are customizable and new features and tools can be imported from the open source community, to provide continuous involvement.

Organization and administration

- Integrated learning management system (LMS) with national EMIS for a National programme and capacity to use ICT for evidence-based policy development;

- Example: Specialized applications in such as Greenstone Digital Library software that provides a multi-lingual version of the Free and Open Source Greenstone Digital Library software suite.

Teacher professional learning

- Establishing new approaches to knowledge dissemination and utilization, particularly through new models of Open and Distance Learning (ODL) for life-long learning.

- Example: Modular Object-Oriented Dynamic Learning Environment - Moodle (moodle.org) that provides a Learning Management System application that provides an instructor with tools to create and deliver online content, monitor student participation and assess student performance.

Education for the 21st Century views learning throughout life and participation in the society of learning as the key to meeting the challenges posed by a rapidly changing world. Four pillars of learning are highlighted:

- '**learning to live together**' – share content and applications for other to use;
- '**learning to know**' – learn from the FOSS community;
- '**learning to do**' – adapt software and content to local conditions;
- '**learning to be**' – be an innovator.

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